

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A dosimeter for detecting high-energy neutron radiation comprising:

(a) a neutron converter comprising; and

a detection element;

wherein the neutron converter comprises:

metal atoms which convert said the energy of the high-energy neutrons to be detected into protons, alpha particles and other charged particlesnuclei in a suitable energy range so that they are detectable, wherein said metal atoms of the neutron converter are stable in the sense of radioactivity;

a hydrogenous material which converts said fast neutrons to be detected into protons;

a material suitable to cause a (n, α) reaction and/or a (n, p) reaction to convert said low-energy neutrons to be detected into protons and/or alpha particles; and

(b) a detection element for detecting and registering said protons, alpha particles and charged particles as produced by said three converting processes;

wherein the dosimeter is operative for detecting high-energy, fast and low-energy neutrons.

2. (Currently Amended) Dosimeter from claim 1, wherein the metal atoms of the neutron converter (3) have an atomic number of $Z > 15$, preferably $Z > 20$.

3. (Previously Presented) Dosimeter from claim 1, wherein the neutron converter comprises titanium, chrome, vanadium, iron, copper, wolfram and/or lead atoms.

4. (Cancelled)

5. (Previously Presented) Dosimeter from claim 1, wherein the neutron converter contains metal atoms with different atomic numbers.

6. (Previously Presented) Dosimeter from claim 1, wherein the neutron converter comprises metal atoms of alloys.

7. (Previously Presented) Dosimeter from claim 1, wherein the neutron converter comprises at least two layers with metal atoms of different atomic numbers.

8. (Currently Amended) Dosimeter from claim 1, wherein the neutron converter comprises layers with metal atoms where essentially only metal atoms with a specific atomic number are included in each layer.

9. (Currently Amended) Dosimeter from ~~claim 4~~ claim 8, wherein the layers of the neutron converter, viewed from the side of the dosimeter, facing the neutron radiation, contain metal atoms with descending atomic numbers.

10. (Currently Amended) Dosimeter from ~~claim 1~~ claim 8, wherein at least one of the layers with metal atoms is configured as metal foil, preferably as rolled metal foil, or polymer foil sputtered with metal.

11. (Currently Amended) Dosimeter from ~~claim 1~~ claim 8, wherein the a sequence of the layers with metal atoms of different atomic numbers is matched to the energy spectrum of the neutron radiation.

12. (Previously Presented) Dosimeter from claim 1, wherein the neutron converter, viewed from the side of the dosimeter facing the neutron radiation, has ${}^6\text{Li}$ atoms and/or ${}^{10}\text{B}$ atoms and/or ${}^{14}\text{N}$ atoms in front of the detection element – preferably arranged in a thin layer.

13. (Previously Presented) Dosimeter from claim 1, wherein at least two dosimeter elements with different metal atoms for measuring the energy and/or angular distribution can be housed in a casing.

14. (Currently Amended) Dosimeter from ~~claim 1~~ claim 12, wherein the neutron converter has a hydrogenous polymer between the metal atoms and the ${}^6\text{Li}$ atoms and/or ${}^{10}\text{B}$ atoms and/or ${}^{14}\text{N}$ atoms (9).

15. (Previously Presented) Dosimeter from claim 1, wherein the neutron converter comprises layers where the first layer facing the neutron radiation contains metal atoms, the second layer the hydrogenous polymer and the third layer ${}^6\text{Li}$ and/or ${}^{10}\text{B}$ and/or ${}^{14}\text{N}$ atoms (9).

16. (Previously Presented) Dosimeter from claim 1, wherein the neutron converter has fields (N1, N2, N3) with different structures arranged spatially next to each other.

17. (Currently Amended) Dosimeter from claim 1, wherein a number of dosimeter elements can be arranged symmetrically on the surface of a cone in order to carry out an area monitoring a local dosage measurement and a directional distribution measurement.

18. (Previously Presented) Dosimeter from claim 1, wherein a number of dosimeter elements can be arranged on a phantom in order to carry out a directional measurement.

19. (Previously Presented) Dosimeter from claim 1, wherein the detection element comprises at least one passive element and/or at least one active element.

20. (Previously Presented) Dosimeter from claim 1, wherein the passive element comprises organic high-molecular polymer, preferably polycarbonate or cellulose nitrate (preferably C39 or macroful), and/or an inorganic crystal and/or mineral, preferably a thermoluminescent crystal, in particular LiF, and/or inorganic glasses and/or an inorganic crystal.

21. (Previously Presented) Dosimeter from claim 1, wherein the active element has a semi-conductor, preferably silicon.

22. (Previously Presented) Dosimeter from one of the preceding claims, wherein provision is made for a photon dosimeter.

23. (Currently Amended) Dosimeter from ~~claim 1~~ claim 8, wherein the converter layers and the detection element can be housed in a casing which has a front and back wall and side walls.

24. (Previously Presented) Dosimeter from claim 1, wherein the side walls contain borium, and/or cadmium and/or nitrogen (^{14}N) and/or lithium atoms (^6Li).